

Application No.: 10/692,584
Response Dated: December 21, 2006
Reply to Office Action Dated: August 21, 2006

REMARKS

This is in response to the Office Action dated August 21, 2006, for which a three (3) month period for response was given. A Petition and fee for a one (1) month extension of time accompany this paper. Also enclosed herewith is a Request for Continued Examination (RCE) and a fee for same. The Commissioner is hereby authorized to charge the extension of time and RCE fees to Deposit Account No. 50-0959, Attorney Docket No. 089498.0447.

Claims 11 through 20 are pending in the application upon entry of this amendment. Claims 1 through 10 were previously canceled. Claim 11 has been amended for clarification purposes. Support for the amendments to claim 11 can be found, for example, in the specification at page 2, lines 30 through 32, and in the Examples. As such, no new matter has been added to claim 11. In view of the above, entry and consideration of the amended claims and the remarks which follow is believed due and is respectfully requested.

I. Claim Objections:

Claim 12 has been objected to by the Examiner on the grounds that the terms "amorphous polymers" and "crystallizing polymers" are not clear. However, the terms "amorphous polymers" and "crystallizing polymers" are well established terms of art, and would be readily understood by one of ordinary skill in the art. Furthermore, specific illustrative examples of amorphous and crystallizing polymers can be found throughout the specification as originally filed.

Additionally, the Applicant's undersigned attorney conducted a Google search for the terms "amorphous polymers" and "crystallizing polymers". The search for the term "amorphous polymers" yielded 178,000 hits at Google (see attached Appendix A). Turning to the search for the term "crystallizing polymers," this Google search yielded 565 hits (see attached Appendix B).

In addition to the above searches, searches for the terms "amorphous polymer" and "crystallizing polymer" were also conducted at www.reference.com. The search for the term "amorphous polymers" yielded 9,420 hits at Reference.com (see attached

Application No.: 10/692,584
Response Dated: December 21, 2006
Reply to Office Action Dated: August 21, 2006

Appendix C). Turning to the search for the term "crystallizing polymers," this Reference.com search yielded 396 hits (see attached Appendix D).

Given the above, it is clear that both of the terms "amorphous polymers" and "crystallizing polymers" are well-known terms of art. As such, the meanings of both terms are clear. Accordingly, this objection to claim 12 is unfounded, and withdrawal thereof is believed due and is respectfully requested.

Claim 12 has also been objected to by the Examiner as failing to further limit the subject matter of claim 11. Regarding this objection to claim 12, it is clear that claim 11 does not specify any one type of polymer, while claim 12 specifically lists a number of specific polymer compositions or blends. As such, claim 12 clearly limits further the subject matter of claim 11. As such, withdrawal of this objection to claim 12 is believed due and is respectfully requested.

Continuing on, the Examiner also contends that not all of polymers listed in claim 12 exhibit the strain hardening phenomenon recited in claim 11. However, the Examiner has offered no concrete evidence of the above contention other than his "naked" and "unsupported" statement that "[n]ot all of the polymers, especially not all of the amorphous polymers and crystallizing polymers, claimed in the dependent claim (claim 12) exhibit the strain hardening phenomenon described in claim 11" (emphasis added). As is well known, the burden of proving the inoperability of a claim is on the Examiner. Since no concrete evidence of the inoperability of any portion of claim 12 has been produced, this objection to claim 12 is unfounded and should be withdrawn. Accordingly, withdrawal of this objection to claim 12 is believed due and is respectfully requested.

II. The 35 U.S.C. § 102(b) Rejections:

Claims 11 through 14, 16 and 18 through 20 have been rejected under 35 U.S.C. § 102(b) over Kobayashi et al. (United States Patent No. 6,139,948). Kobayashi et al. relates to a coated aliphatic polyester film which is degradable in a natural environment, has good blocking resistance and is excellent in the durability of membrane effect due to small coefficient of variation in the membrane thickness. Specifically, the Examiner

Application No.: 10/692,584
Response Dated: December 21, 2006
Reply to Office Action Dated: August 21, 2006

contends that Examples 1 through 4 of Kobayashi et al. teach a process whereby polylactic acid and silica particles are blended, pelletized, and extruded as a film, and biaxially stretched at 70°C.

However, further review of all the Examples and Comparative Examples of Kobayashi et al. clearly reveal that none of the polymer compositions therein are subjected to a quenching step to yield an amorphous polymer. This is clearly supported by the disclosure contained at columns 12 and 13, where in Examples 1 through 3, Kobayashi et al. specifies that the pelletized polymer was dried and heat-treated in an oven at 80°C in order to crystallize the polymer.

Given the above, Kobayashi et al. fails to disclose, teach or suggest each and every step of the strain hardening process of amended claim 11. Since Kobayashi et al. fails to disclose, teach or suggest each and every step of the strain hardening process of claim 11, Kobayashi et al. can not anticipate, or render obvious, amended claim 11. As such, claims 11 through 14, 16 and 18 through 20 are believed to be patentable over Kobayashi et al. Accordingly, withdrawal of the novelty rejection of claims 11 through 14, 16 and 18 through 20 over Kobayashi et al. is believed to be due and is respectfully requested.

Claims 13 through 20 have been rejected under 35 U.S.C. § 102(b) over Deguchi et al. (United States Patent No. 5,248,720). Deguchi et al. relates to a process for preparing a polyamide composite film material. Specifically, the Examiner contends that Deguchi et al. discloses the preparation of polyamide films, where such films contain from 0.1 to 10 parts by weight organo-modified montmorillonite clays, where such clays have particles sizes in the range of 2 to 1,000 nm by 6 to 20 Angstroms.

However, further review of the disclosure and, more particularly, the Examples contained in Deguchi et al. clearly reveals that none of the polymer compositions therein are amorphous below their melting points. This is because all of the polyamides produced in the Examples of Deguchi et al. are polyamide 6, or PA6, as can be seen in Examples 1 through 9 and Comparative Examples 1 through 4. As is known to those of ordinary skill in the art, PA6 is also known as Nylon 6 (see Appendix E for additional support of this proposition).

Application No.: 10/692,584
Response Dated: December 21, 2006
Reply to Office Action Dated: August 21, 2006

Furthermore, as is known to those of ordinary skill in the art, PA6 is a polymer that is crystalline below its melting point (216°C). As such, regardless of whether or not PA6 is subjected to a quenching process, PA6 can not achieve an amorphous state below its melting point and is in a crystalline state upon being subjected to stretching since such stretching occurs at 50°C to 180°C. On the other hand, the process of amended claim 11 recites that the polymer composition used therein is in an amorphous state prior to being strain hardened. In other words, the present invention as is recited in claims 11 through 20 specifically focuses on those polymer materials that are quenchable into an amorphous state but subsequently strain hardenable above their glass transition temperatures while in a rubbery state.

Given the above, since Deguchi et al. only discloses the preparation of oriented PA6 films, from PA6 pellets, Deguchi et al. can not anticipate, or render obvious, the present invention as recited in amended claim 11. Accordingly, withdrawal of the novelty rejection of claims 13 through 20 over Deguchi et al. is believed to be due and is respectfully requested.

III. Conclusion:

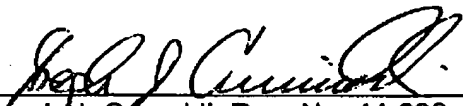
For at least the foregoing reasons, the claim objections and rejections under 35 U.S.C. §§ 102(b) are believed to be unfounded, and withdrawal thereof is believed due and is respectfully requested.

For at least the foregoing reasons, the present application is believed to be in condition for allowance, and a Notice of Allowance is respectfully requested.

Application No.: 10/692,584
Response Dated: December 21, 2006
Reply to Office Action Dated: August 21, 2006

Should the Examiner wish to discuss any of the foregoing in more detail, the undersigned attorney would welcome a telephone call.

Respectfully submitted,



Joseph J. Crimaldi, Reg. No. 41,690
Roetzel & Andress
222 S. Main St.
Akron, Ohio 44308
(330) 376-2700

December 21, 2006

1393818.089498.0447

"amorphous polymers" - Google Search

Page 1 of 2

Appendix A

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e - Polymer Handbook

Seachable for Polymers and Properties in Seconds

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[Introduction to Polymers](#)

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Appendix B

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Morphology of Crystallizing Polymers

Morphology of Crystallizing Polymers. A. KELLER. Imperial Chemical Industries, Ltd., Hexagon House, Manchester 9. Alfrey, T. , "Mechanical Behaviour of High ...
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Growth kinetics in melt-**crystallizing polymers**: a possible role of nucleating agents.
 Authors: Aliotta F.; Di Marco G.; Pieruccini M.1 ...
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and Blends of **Crystallizing Polymers** under Deformation. 1. E. V. Rusinova ...
crystallizing polymers; the latter fact indicates deterior- ...
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Emerald FullText Article : A simulation of crystallinity gradients ...

In this study, a three-dimensional (3D) flow model is used to approximate the crystallinity gradients of slowly **crystallizing polymers** developed in the ...
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Injection Molding of Slowly Crystallizing Polymers.

The formation of crystalline layers adversely affected the mechanical properties of these slowly **crystallizing polymers**. The crystallinity gradients in ...

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adsabs.harvard.edu/abs/1995PhDT.....10U - Similar pages

20. Lamellar Growth in Melt-Crystallizing Polymers: Some Effect ...

Lamellar Growth in Melt-Crystallizing Polymers: Some Effect Related to a Nucleating

Agent. Authors: Marco, G.; Pieruccini, M. Affiliation: ...

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Thermal Properties of Polymers

The specific volume measurements shown here, made on an **amorphous polymer** (2), are carried out in a dilatometer at a slow heating rate. ...
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MATTER Glossary

Amorphous polymer. A polymer in which the molecular chains exist in the irregular conformation. An irregular chain conformation is adopted if the molecular ...
www.matter.org.uk

semicrystalline polymers

The **amorphous polymer** becomes trapped between the growing crystals. ...
In the molten state, dipole moments on the **amorphous polymer** chains are free to move ...
www.tufts.edu

Elastomers

Whether an **amorphous polymer** is a thermoplastic or an elastomer depends on ...
If an **amorphous polymer** has a Tg below room temperature, that polymer will be ...
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Natural rubber is a completely **amorphous polymer**. ... The high Tg and Tm values

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Amorphous Polymer Systems. Han E. H. Meijer,* Leon E. Govaert. Materials Technology,

Dutch Polymer ... heterogeneous **amorphous polymer** systems. [56,64] ...
doi.wiley.com

Surface tension of **amorphous polymer** lms

We study the surface tension for thin, **amorphous polymer** lms by means ...

To prepare **amorphous polymer** surfaces like the one in Fig. ...

wwwcp.tphys.uni-heidelberg.de

Kinetic immiscibility of crystalline polymer/**amorphous polymer** blends

In crystalline polymer/**amorphous polymer** blends the crystalline component crystallizes out, however low its concentration in the blend, if the blends are ...

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and crystallizing polymer during fast cooling. University of Salerno, Department of

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Measurements of the rheological behavior of a crystallizing...
The technique is also used to study the liquid-to-solid transitional
behavior of
the **crystallizing polymer**, which can be seen as a gelation process, ...
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Bayer MaterialScience NAFTA - Products - Baypren®
Medium **crystallizing polymer** for formulating contact adhesives with an
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Chemical Database


Polyamide 6

Identifications

- **CAS Number:** 25038-54-4
- **Synonyms/Related:**
 - 6-Aminohexanoic acid homopolymer
 - A 1030
 - A 1030N0
 - Akulon
 - Akulon M 2W
 - Alkamid
 - Amilan CM 1001
 - Amilan CM 1001C
 - Amilan CM 1001G
 - Amilan CM 1011
 - Amilan CM 1031
 - ATM 2 (nylon)
 - Aviamide-6
 - B-203
 - B-216
 - B-300
 - B-35
 - B-350
 - Bonamid
 - Capran 77C
 - Capran 80
 - Caproamide
 - Caproamide polymer
 - Caprolactam oligomer
 - Caprolactam polymer
 - Caprolon B
 - Caprolon V
 - Capron
 - Capron 8250
 - Capron 8252
 - Capron 8253
 - Capron 8256
 - Capron B
 - Capron gr 8256
 - Capron GR 8257
 - Capron gr 8258
 - Capron PK 4
 - Capronamide
 - Chemlon
 - CM 1001

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Appendix E
(see bottom
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- o CM 1011
 - o CM 1031
 - o CM 1041
 - o Danamid
 - o Dull 704
 - o Durethan bk
 - o Durethan bk 30S
 - o Durethan bk 30H
 - o Durethan bk 55H
 - o epsilon-Caprolactam polymer
 - o epsilon-Caprolactam polymere [German]
 - o Ertalon 6sa
 - o Extron 6N
 - o Grilon
 - o Hexahydro-2H-azepin-2-one homopolymer
 - o Hexamide
 - o Hexamide (VAN)
 - o HEXANAMIDE
 - o Hexylamide
 - o Itamid
 - o Itamid 250
 - o Itamide 25
 - o Itamide 250
 - o Itamide 250G
 - o Itamide 35
 - o Itamide 350
 - o Itamide S
 - o Kaprolit
 - o Kaprolit B
 - o Kaprolon
 - o Kaprolon B
 - o Kapromin
 - o Kapron
 - o Kapron A
 - o Kapron B
 - o KS 30P
 - o Maranyl F 114
 - o Maranyl F 124
 - o Maranyl F 500
 - o Metamid
 - o Miramid H 2
 - o Miramid wm 55
 - o n-Caproamide
 - o n-Hexanamide
 - o Nylon
 - o Nylon 6
 - o Nylon A1035sf
 - o Nylon cm 1031
 - o Nylon X 1051
 - o Nylon-6
- 

- o Orgamid rmnocd
- o Orgamide
- o P 6 (Polyamide)
- o PA 6 (Polymer)
- o PK 4
- o PKA
- o Plaskin 8200
- o Plaskon 201
- o Plaskon 8201
- o Plaskon 8201hs
- o Plaskon 8202C
- o Plaskon 8205
- o Plaskon 8207
- o Plaskon 8252
- o Plaskon xp 607
- o Policapram [USAN:INN]
- o Policapramum [INN-Latin]
- o Policapran
- o Poly(epsilon-aminocaproic acid)
- o Poly(hexahydro-2H-azepin-2-one)
- o Poly(Imino(1-oxo-1,6 hexanediyl))
- o POLY(IMINO(1-OXO-1,6-HEXANEDIYL))
- o Poly(iminocarbonylpentamethylene)
- o Polyamide 6
- o Polycaproamide
- o Polycaprolactam
- o Relon P
- o Renyl mv
- o Sipas 60
- o Spencer 401
- o Spencer 601
- o Tarlon X-A
- o Tarlon xb
- o Tamamid T
- o Tamamid T 2
- o Tarpamid T 27
- o TNK 2G5
- o Torayca N 6
- o UBE 1022B
- o Ultramid B 3
- o Ultramid B 4
- o Ultramid B 5
- o Ultramid bmk
- o Vidlon
- o Widlon
- o Zytel 211

Editor's note: Some chemicals in this database contain more information than others due to the original reason this information was collected and how the compilation was accomplished.

While working with material safety data sheets (MSDS), I found that manufacturers sometimes used

obscure names for constituent chemicals and I didn't always have a good idea of what I was dealing with. To resolve this problem, over the years, I compiled chemical names and identifiers into a personal database, cross referencing regulatory and health safety information when possible. Colleagues and friends eventually started suggesting that I make my data available on this website so that others could benefit from my efforts -- which I finally did in 2004. The more common, regulated and/or hazardous a chemical is, the more information I will have likely collected it.

Further notes are below.

Trademarks

If you are aware of any synonyms listed above that are registered trademarks, please contact us with relevant information so that trademarks can be appropriately noted.

Notes about mixtures

Some chemicals listed in this database are not pure chemical compounds, rather they are mixtures/solutions of chemicals. It is not uncommon for wide range of molar ratios of a mixture to be lumped together as "synonyms" of the same "chemical". In some instances chemicals that are very similar from a health & safety and/or regulatory standpoint also may have been lumped together.

Reference Sources

Data for this database was compiled from: hundreds of Material Safety Data Sheets (MSDS) of common industrial and household products; the Hazardous Materials Table from the United States "Code of Federal Regulations" title 49 section 172.101; the National Institute for Occupational Safety and Health Pocket Guide to Chemical Hazards; the US DOT 1996, 2000 & 2004 Emergency Response Guidebooks; U.S. National Library of Medicine and many other related resources.

Disclaimer

WARNING: These pages are for general reference and educational purposes only and MUST NOT be relied upon as a sole source to determine regulatory compliance or where matters of life and health are concerned. This site and the author do not warrant or guarantee the accuracy or the sufficiency of the information provided and do not assume any responsibility for its use.

To ensure regulatory compliance when transporting hazardous materials or dangerous goods, one must receive proper training and certification from a qualified instructor and refer to the current year's Code of Federal Regulations Title 49 (49CFR) or your country's shipping regulations. In matters regarding workplace safety, refer to current OSHA regulations (29CFR) and NIOSH guidelines or your own country's health and safety regulations. No one should ever enter into a hazardous environment without proper training from qualified instructors.

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